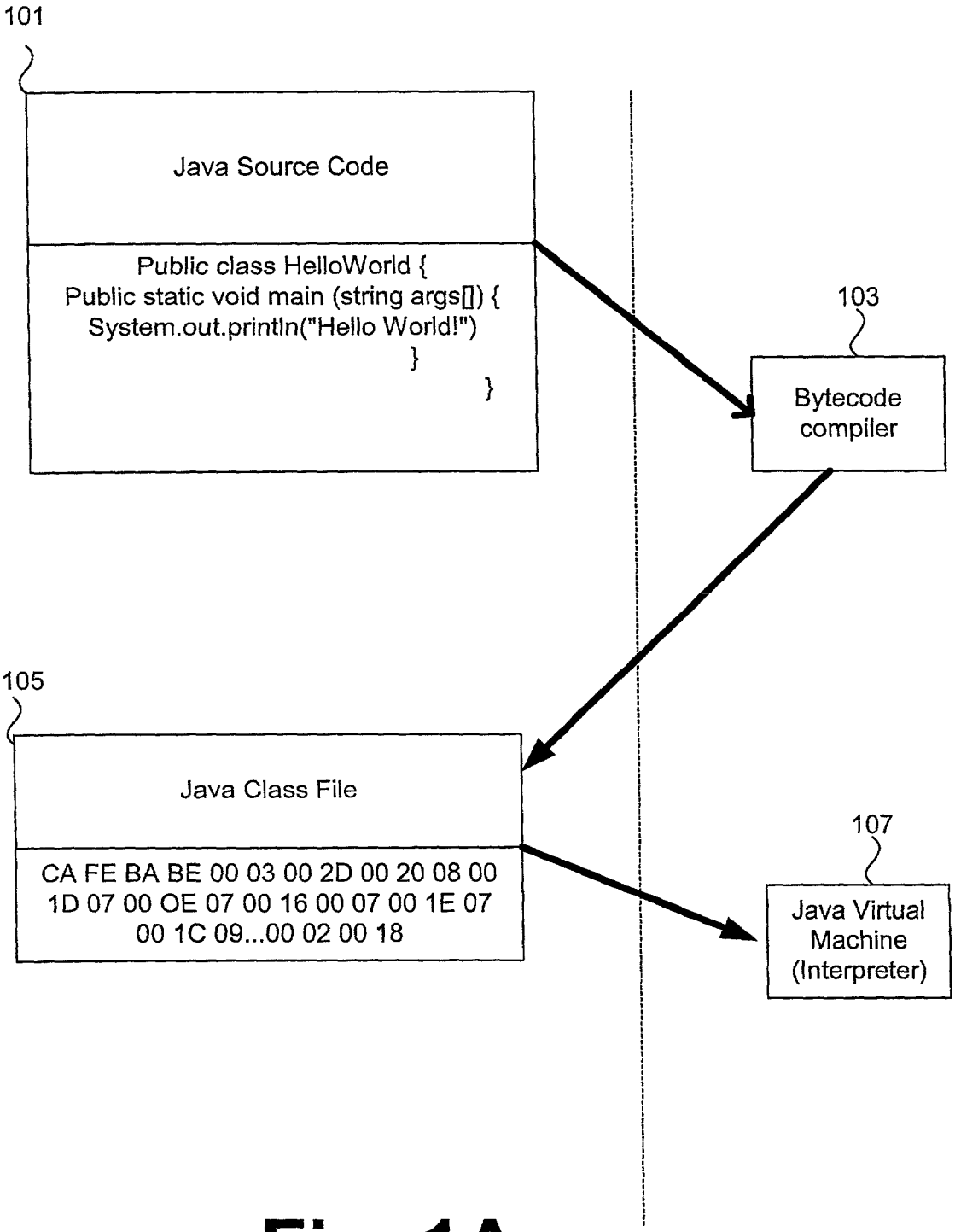
101
Java Source Code
Public class HelloWorld {
Public static void main (string args[]) {
System.out.println("Hello World!")
}
}
103
Bytecode compiler
105
Java Class File
CA FE BA BE 00 03 00 2D 00 20 08 00
1D 07 00 OE 07 00 16 00 07 00 1E 07
00 1C 09...00 02 00 18
107
Java Virtual Machine (Interpreter)

Fig. 1A

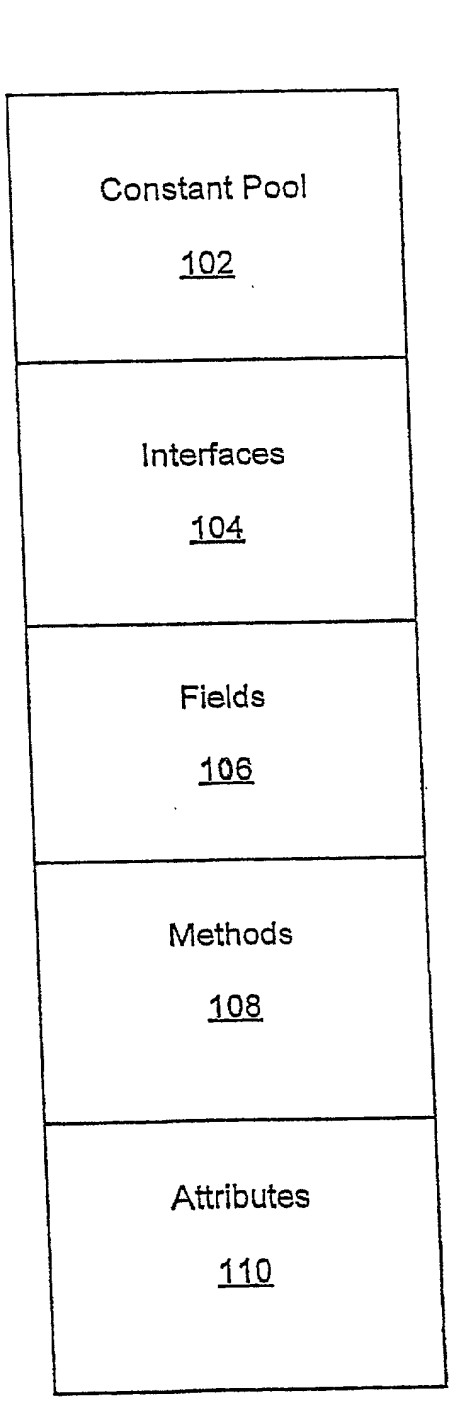
100
Constant Pool
102
Interfaces
104
Fields
106
Methods
108
Attributes
110

Fig. 1B

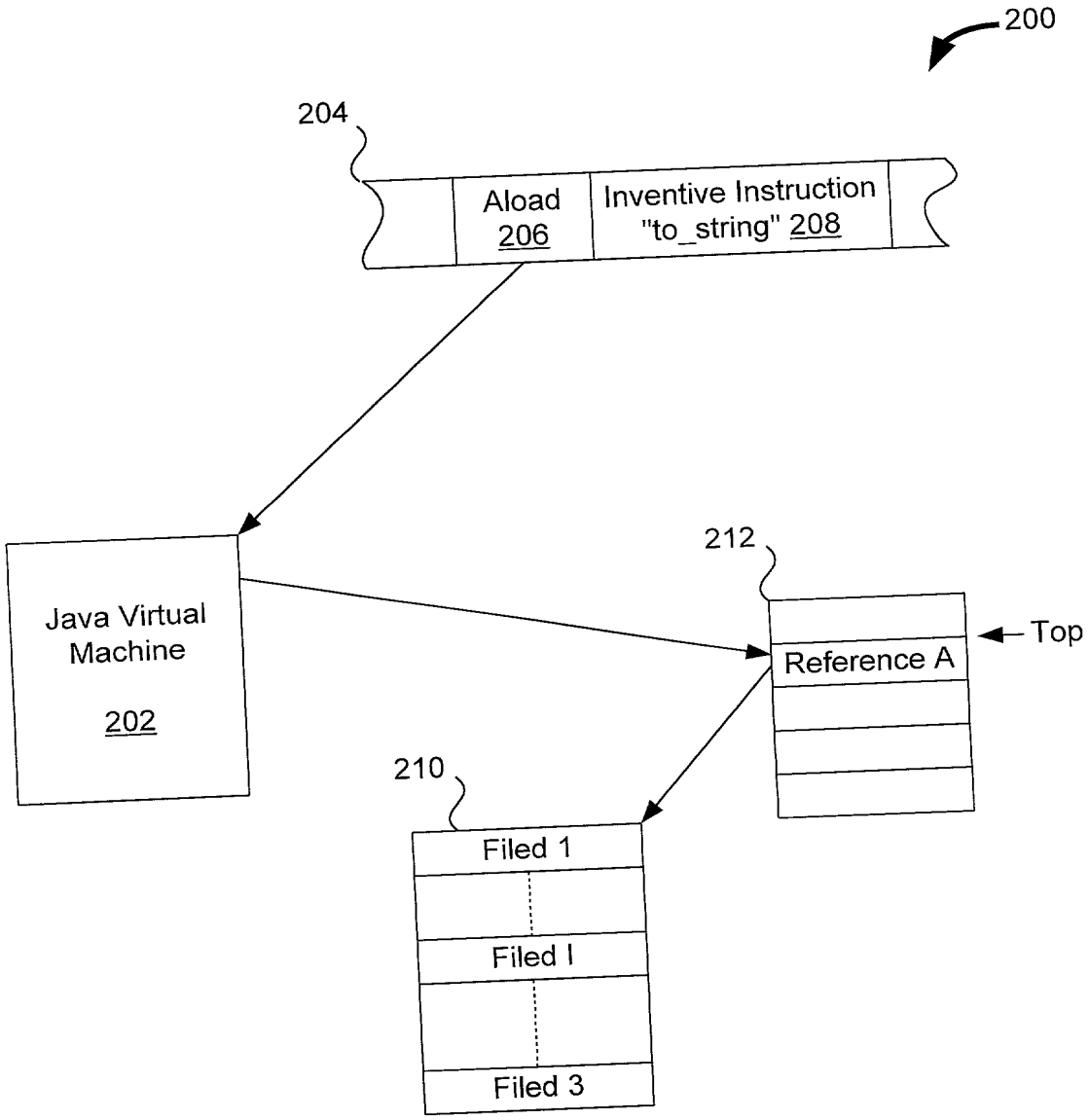
200
204
Aload
206
Inventive Instruction
"to_string" 208
Java Virtual
Machine
202
212
Top
Reference A
210
Filed 1
Filed I
Filed 3

Fig. 2A

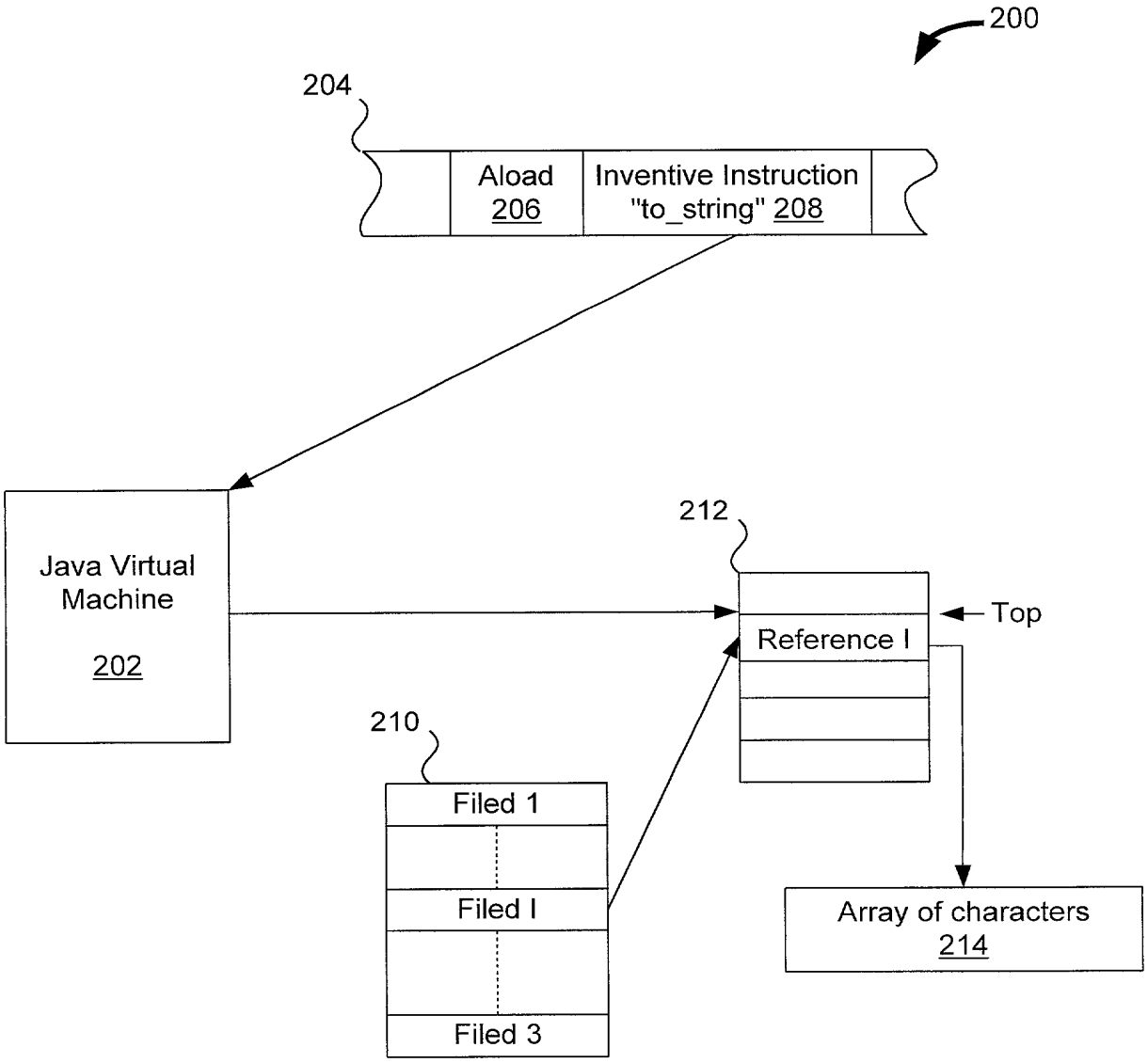
200
204
Aload
206
Inventive Instruction
"to_string" 208
Java Virtual
Machine
202
212
Reference I
Top
210
Filed 1
Filed I
Filed 3
Array of characters
214

Fig. 2B

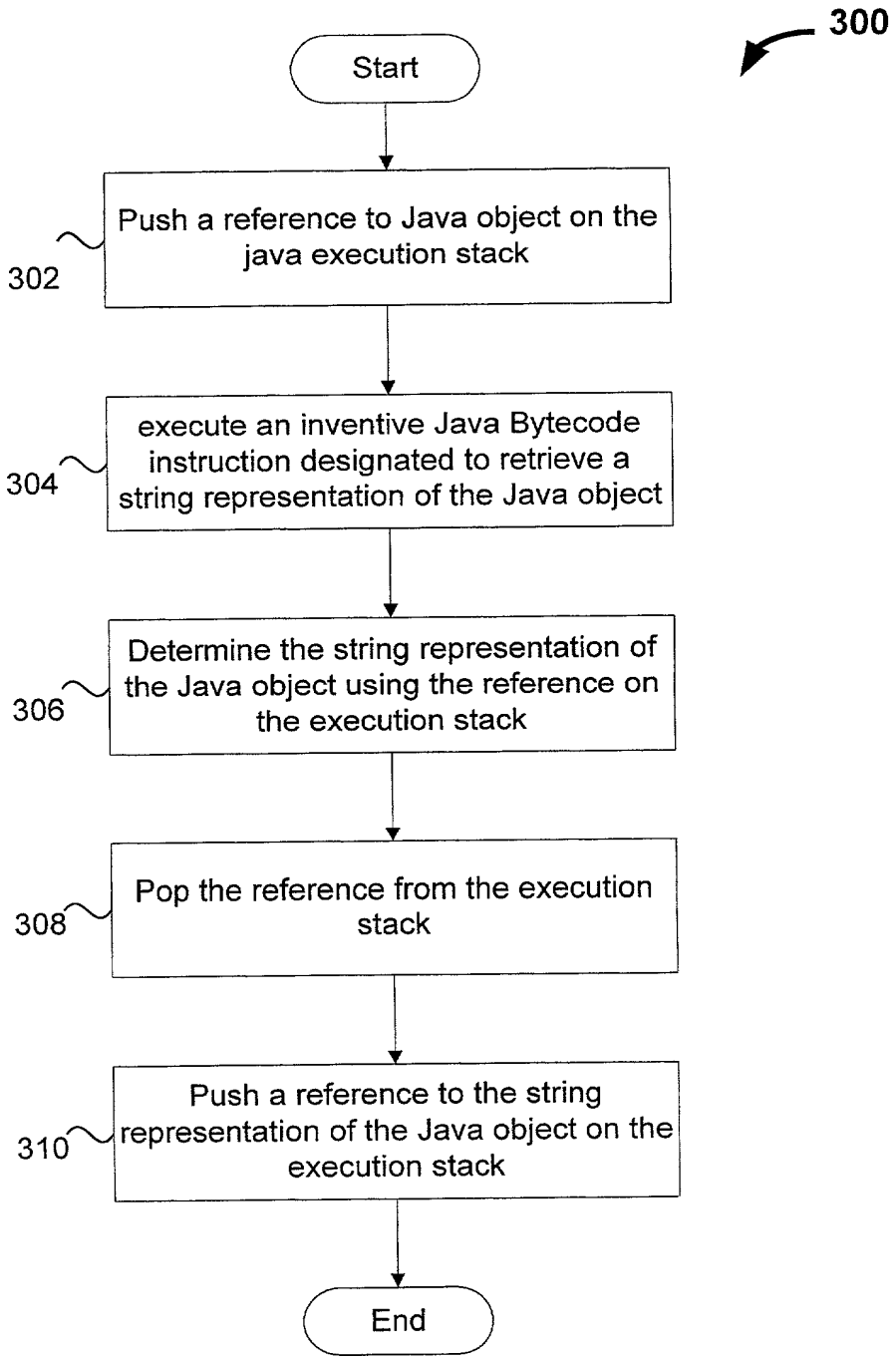
300
Start
Push a reference to Java object on the java execution stack
302
execute an inventive Java Bytecode instruction designated to retrieve a string representation of the Java object
304
Determine the string representation of the Java object using the reference on the execution stack
306
Pop the reference from the execution stack
308
Push a reference to the string representation of the Java object on the execution stack
310
End

Fig. 3